ADVANCEMENTS IN AI & WHAT THEY MEAN FOR THE FUTURE OF ROBOT-HUMAN INTERACTION

AN INTERVIEW WITH ÇETIN MERIÇLI

Çetin Meriçli, Ph.D., is the CEO and cofounder of *Locomation*, a leading developer of safe and reliable autonomous driving technology for semi-trucks. He is an experienced entrepreneur and formerly a Special Faculty at the National Robotics Engineering Center (NREC) of Carnegie Mellon's Robotics Institute. Çetin has two decades of experience in developing and deploying complex robotic systems for commercial, military, and scientific applications – and has played key roles in over a dozen high-profile applied robotics projects. He is a well-published expert in AI, robotics, and machine learning.

We recently caught up with Çetin to get his thoughts on everything from what inspires him through to the future of autonomous vehicles. Here's what we discussed. (For a more in-depth insight, listen to our podcast with Çetin here.)

Arduino Education: Hi Çetin, thank you for talking with us today. Let's go ahead and get into it by asking what makes you inspired?
Çetin Meriçli: Hi! That's a great question, and it's difficult to narrow it down to just one thing! Every time I see a very simple and elegant solution to a problem, I feel very inspired. I'm one of these people who really gets excited about less is more.

AE: That's definitely inspiring. So other than these elegant solutions that you see, are there any people or books or resources that inspire you?

ÇM: There are a *lot*! I deeply believe that we all are the average of five people around us or whoever we get exposed to, which is great for me because I've always been surrounded by people much smarter than I am! To be more specific, I owe a lot to my PhD co-advisors. I had two, one from Boston University in Turkey, and one from Carnegie Mellon University in the US. They were very different people from a style point of view, but they both have been very influential to me.

As for books, it would be the Hitchhiker's Guide to the Galaxy by Douglas Adams. Again, a deep, deeply formative book.

AE: Next up, what's a common myth about your profession that you'd like to set straight?
ÇM: I'm really not happy about the assumption these days around AI and robotics, and that you can solve everything by using more data and larger machine learning systems. The amount of progress we've been making in machine learning in the past five or 10 years is tremendous, but there's no "one size fits all", there is no one sledge hammer that you can nail all the nails with. It's also not all about data and machine learning - there are other things to learn.

AE: That's a great insight. What made you go into the field of robotics?
ÇM: My interest in computers started at an early age, and I started spending a significant amount of time trying to learn how to program them, which took a while. I then got to a point where I was very comfortable explaining to a computer what I wanted to do, like driving a computer program. But then that wasn't enough. I almost wanted the computer to be able to make decisions and kind of surprise me and have its own authority!

Then, early in my career as an undergrad, I stumbled upon a project at MIT about little toy robots communicating with each other, almost like an ant colony. I was fascinated by the concept of distributed AI. And I said to myself, at that exact moment, I'm going to spend the rest of my life on this. And that was the beginning of my career.

AE: Amazing, it's pretty powerful to have one of those moments in life. Do you think Arduino would have been a good thing to have then?
ÇM: I wish we had Arduino when I was growing up! I would have had so much more fun. The amount of friction it removes from realizing your idea is so valuable, it's very important. I think *Arduino plays an enormous role in making AI accessible*, and enabling fast innovation.

AE: We agree with you on that! In terms of robotics, how do you see its role in education?
ÇM: We need to utilize intelligent machines to do tasks for us both independently and sometimes in cooperation with others. This is the future, it's inevitable. We cannot avoid being around robots or being knowledgeable about robots.

When you bring that into education, you're teaching the upcoming generation what is possible. And once they figure out the landscape, if their hearts and passion are in robotics, then they can go on and dig deeper and properly learn the field. I think it's very important in order for them to make an informed decision about their future.

AE: Yes - like they should be aware of what is out there! Tell us about your company, Locomation. What is the current level of autonomy in transportation?
ÇM: As of today, we don't have self-driving vehicles as products that you can go and purchase. We are not there yet. What we have are advanced prototypes. Locomotion itself is around a year away from launching an actual product. And in the next year, hopefully, if nothing changes, we will be the first company to offer a truly autonomous system as a product.

AE: Wow, amazing! So, what challenges have you faced during this time? And what benefits do you think these kinds of vehicles will have?
ÇM: A huge benefit that the pandemic has highlighted is the contactless side of it, in terms of deliveries and getting the essentials to those who need them. Over time, people will commute less, so things will have to come to us rather than the other way round. The pandemic accelerated this by five, maybe 10 years. Now everybody wants to ship more stuff, wants more visibility, more reliability around delivery times, and wants to pay less for it, so the demand is accelerating.

This demand, coupled with a shortage of haulage drivers, means there is a gap that can be filled with autonomous vehicles, essentially making driving much more efficient, improving working conditions, and making the necessary transition.

AE: That's a really great insight. So as a final question, if you were to give one piece of advice to a student interested in this field, what would it be?
ÇM: Get your hands dirty! Thanks to the internet and things like open source information, it's so easy to start these days. The best way of learning it is to start experimenting with things you can actually put your hands on. For example, an Arduino-based robot that you can actually see and touch. You need to experience it for yourself and experiment. It's putting that time in that counts, in any field. For example, if you want to become a really accomplished piano player, you need to put in 10,000 hours. The sooner you can start putting your 10,000 hours into robotics, the better!

INSPIRED? HERE'S WHAT YOU NEED TO GET STARTED WITH ARDUINO EDUCATION

The *Arduino Student Kit* can be used for both home learning and classroom teaching. It will help you get started quickly and easily with robotics, electronics, and coding.

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